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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/865,154	05/24/2001	Jon K. Wallace	TRW(TE)5592	3908

26294 7590 04/06/2004

TAROLLI, SUNDHEIM, COVELL & TUMMINO L.L.P.  
526 SUPERIOR AVENUE, SUITE 1111  
CLEVEVLAND, OH 44114

EXAMINER

BHATNAGAR, ANAND P

ART UNIT PAPER NUMBER

2623

DATE MAILED: 04/06/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/865,154

Applicant(s)

WALLACE ET AL.

Examiner

Anand Bhatnagar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05/24/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numazaki et al. (U.S. patent 6,144,366) and Breed et al. (U.S. patent 5,845,000).

Regarding claims 1 and 14: Numazaki et al. discloses an apparatus said apparatus comprising:

means for collecting a first image to a first lighting condition (Numazaki; col. 10 lines 8-12 and 42-50;

means for providing light onto the location (Numazaki et al.; col. 10 lines 30-32 and col. 11 lines 33-37);

means for collecting a second image to the first lighting condition and the provided light (Numazaki et al.; col. 11 lines 43-52, where a second image is formed wherein a light illuminated onto the subject);

means for generating a third image of the difference between the first and second images (Numazaki et al.; col. 11 lines 43-52, wherein a difference image is generated);

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means for processing the third image (Numazaki et al.; col. 11 lines 64-67, where the image is processed to determine certain features in the image).

Numazaki et al. discloses an object/feature detection device wherein an object is illuminated under different lighting conditions and images obtained of the object under different conditions. These images are processed to detect the features of the object in the images. Numazaki et al. further discloses that this invention with some image processing can be used in a manner that is preferable to an user such as in the field of, besides commercial use, industry, home, and/or amusement (Numazaki et al.; col. 16 lines 20-27 and col. 17 lines 10-12).

Numazaki et al. does not teach to use this method/apparatus to detect an occupant in a vehicle. Breed et al. teaches to detect occupants and features/characteristics of occupants in a vehicle by illuminating the occupant and obtaining image(s) of the illuminated occupant (Breed et al.; col. 7 lines 26-38 and col. 10 lines 20-28). It would have been obvious to one skilled in the art to combine the teaching of Breed et al. to that of Numazaki et al. because they are analogous in detecting objects and features of objects in images obtained of the objects which have been illuminated. One in the art would have been motivated to incorporate the teaching, of locating an occupant and characteristics of an occupant in a vehicle, of Breed et al. into the system of Numazaki et al. in order to monitor the occupant for safety purposes to prevent airbag deployment induced injuries (Breed et al.; col. 7 lines 3-6).

Regarding claim 2: An apparatus wherein said means for providing light comprises means for providing light in a pattern (Numazaki et al.; col. 10 lines 28-33, wherein the lighting unit generates light based on a timing signal, this timing of the light being generated is read as a pattern of light).

Regarding claims 3 and 4: An apparatus wherein said means for providing light comprises means to provide the pattern such that the pattern light is at least partially distorted when the pattern light impinges upon surfaces at the occupant location (Numazaki et al.; col. 12 lines 12-15 and 30-37, where the reflected light is dependent on the objects characteristics), said means for collecting the second image comprises means for collecting the second image to be indicative of the distortion of the pattern light (Numazaki et al.; col. 11 lines 32-52 and col. 12 lines 12-15 and 30-37, wherein the images obtained of the illuminated object will be including the distortion produced by object's characteristics), and said means for processing the third image comprises means for processing the distortion indication to determine the vehicle occupant characteristic (Numazaki et al.; col. 11 lines 52-55 and 64-67 and col. 12 lines 12-15 and 27-37, wherein the difference image is processed to obtain the features of the object such as the distance of the object which is calculated by the reflectance of light obtained of the object and includes the distortion produced by the object distance).

Regarding claims 5, 6, and 15: An apparatus wherein said means for processing comprises means for determining occupant position relative to a vehicle component as the determined vehicle occupant characteristic.

It is rejected for the same reason as claims 3 and 4 above since the distance and orientation of the object are determined by the reflectance of the light being illuminated on the object.

Regarding claim 7: An apparatus wherein said single component is located forward of the occupant location with regard to a vehicle-based orientation (Breed et al.; fig. 1A and col. 7 lines 27-32, where the objects in the vehicle and external objects around the vehicle are determined). The obvious and motivation are the same as claim 1 and 14 above.

Regarding claim 8: An apparatus wherein said means for providing light directs light rearward onto the occupant location (Breed et al. fig. 2 elements 210-213, 230, and 242 and col. 14 lines 36-44). The obvious and motivation are the same as claim 1 and 14 above.

Regarding claim 9: An apparatus wherein said means for collecting a first image, said means for providing light, and said means for collecting a second image are located lateral of the occupant location with regard to a vehicle-based orientation. It is rejected for the same reason as claim 1 above and it is a matter of configuration of how to illuminate and/or image an object.

Regarding claim 10: An apparatus wherein said means for processing comprises means for determining position of an occupant along a fore-to-aft axis with regard to the vehicle-based orientation as the determined vehicle occupant characteristic. It is rejected for the same reason as claim 1 above and it is a matter of configuration of how to illuminate and/or image an object.

Regarding claims 11 and 16: An apparatus as set forth wherein said means for providing light comprises means for providing structured light (Numazaki et al.; col. 10 lines 28-33, where the light is controlled).

Regarding claim 12: An apparatus wherein the first lighting condition is ambient light within the vehicle (Numazaki et al.; col. 14 lines 28-33).

Regarding claim 13: An apparatus wherein said apparatus is part of an occupant protection system that includes an acutatable occupant protection device, said apparatus further comprising means for outputting a signal indicative of the determined vehicle occupant characteristic as an input utilized to control the occupant protection device (Breed et al.; col. 8 lines 10-23). The obvious and motivation are the same as claim 1 above.

### ***Conclusion***

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ando (U.S. patent 5,008,946) for recognizing occupant motion to control vehicle devices.

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**Contact Information**

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anand Bhatnagar whose telephone number is (703) 306-5914, whose supervisor is Amelia Au whose number is 703-308-6604, group fax is 703-872-9306, and Tech center 2600 customer service office number is 703-306-0377.

AB

Anand Bhatnagar

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April 3, 2004

  
SAMIR AHMED  
PRIMARY EXAMINER